

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants : Armin SCHLEMMER et al.

Confirmation No.: 2920

Appln. No : 10/045,042

Group Art Unit: 3722

Filed : January 15, 2002

Examiner: D. Ross

For : CUTTING TOOL AND INDEXABLE INSERT

## APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This appeal is from the Examiner's final rejection of claims 1 - 40 as set forth in the Official Action of October 16, 2003.

A Notice of Appeal in response to the October 16, 2003 Final Office Action was filed March 16, 2004 along with a Request for a Two-month Extension of Time. The instant Appeal Brief is being timely submitted within two months of the Notice of Appeal date, i.e., by May 17, 2004 (May 16, 2004 being a Sunday).

The requisite fee under 37 C.F.R. 1.17(c) in the amount of \$ 330.00 for the filing of the Appeal Brief is being paid by check submitted herewith. However, if for any reason the necessary fee is not associated with this file, the Commissioner is authorized to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 19 - 0089.

This appeal brief is being submitted in triplicate, pursuant to 37 C.F.R. 1.192(a).

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**(1) REAL PARTY IN INTEREST**

The real party in interest is BÖHLERIT Ges. m.b.H & Co. KG by an assignment recorded in the U.S. Patent and Trademark Office on January 15, 2002 at Reel 012496 and Frame 0770.

**(2) RELATED APPEALS AND INTERFERENCES**

No related appeals and/or interferences are pending.

**(3) STATUS OF THE CLAIMS**

Claims 1 - 40, the only claims pending in the instant application, stand finally rejected.

**(4) STATUS OF THE AMENDMENTS**

An Amendment Under 37 C.F.R. 1.116 was filed January 16, 2004, which the Examiner, in the February 2, 2004 Advisory Action, indicated would be entered. Moreover, the Examiner indicated that the rejections under 35 U.S.C. §112, second paragraph, would be withdrawn.

Moreover, the Examiner has indicated that an alternative rejection of claims 1, 8, and 40 under 35 U.S.C. §102(b), similar to the rejection of claim 18, would be applicable to the amended claims.

**(5) SUMMARY OF THE INVENTION**

The instant invention is directed to a cutting tool for drilling and turning. The tool includes a base body having at least one coolant bore, as well as a clamping part and an essentially cylindrically formed working part following the clamping part in an axial direction. An indexable tip, which is releasably connected to the working part at its end

opposite the clamping part, includes, in plan view, circumferential cutting edges. The working part has a flute running in the direction of the tool axis and a form-locking seat for the indexable tip with cutting edges slightly projecting. (Specification paragraph [0002]). The instant invention is also directed to an indexable tip for a cutting tool for machining materials, in particular metals and alloys. The indexable tip is limited by a flat supporting area, a face opposite the supporting area and open spaces connecting the supporting area and the face. (Specification paragraph [0003]).

In an exemplary embodiment of the invention, a cutting tool includes a base body 1 with a clamping part 2 and a working part 3 following it in an axial direction. A coolant channel 32 passes through base body 1 in the direction of axis of rotation A and can feed coolant to an exit 321. Indexable tip 4 features, e.g., a hexagonal shape in plan view with alternately obtuse and acute corner angles mountable in form-locking seat 33. (Specification paragraph [0063]; Figure 1).

By way of example, indexable tip 4 is formed by a flat supporting area 41, a face 42 opposite supporting area 41, and open spaces 43 connecting supporting area 41 and face 42. (Specification paragraph [0064]; Figure 3). Moreover, indexable tip 4 features straight cutting edges 40, 40I, 40II, 40III, 40IV, 40V, which in plan view form alternately acute-angled corners 44, 44', 44'', and obtuse-angled corners 45, 45', 45'' and whose vertical distance from supporting area 41 in the region of obtuse-angled corners 45, 45', 45'' exhibits a minimum. (Specification paragraph [0064]; Figure 4). A depiction along section line AB depicted in Figure 4, in which part 421 of face 42 adjacent to the cutting edges is inclined

with respect to supporting area 41, through which a good cutting action can be achieved during use in a cutting tool. (Specification paragraph [0064]; Figure 6).

According to the invention, indexable tool 4 in combination with clamping part 2 form cutting tool 1, and cutting tool 1 can be used, e.g., for making a bore 51 or 52 in a work piece 5. Work piece 5 can be rotated around a work piece axis W and moved straight forward in the direction of cutting tool 1, whereby chips are separated from work piece 5 by cutting tool 1. The diameter L of bore 51 or 52 is essentially determined by the offset V of work piece axis W and axis of rotation A of cutting tool 1. (Specification paragraph [0065]; Figures 7 and 8).

**(6) ISSUES**

**(A) Whether Claims 1, 8, 18 – 21, 39, and 40 are Improperly Rejected Under 35 U.S.C. §102(b) as being Anticipated by International Publication No. WO 98/51438 [hereinafter "WO '438"];**

**(B) Whether Claims 22 – 24 and 31 – 38 are Improperly Rejected Under 35 U.S.C. § 103(a) as being Unpatentable Over WO '438;**

**(C) Whether Claims 25 – 38 are Improperly Rejected Under 35 U.S.C. §103(a) as being Unpatentable Over WO '438 in view of HALE (U.S. Patent No. 4,776,732); and**

**(D) Whether Claims 1 – 17 and 40 are Improperly Rejected Under 35 U.S.C. §103(a) as being Unpatentable Over WO '438 in view of SHAFFER (U.S. Patent No. 6,464,433).**

**(7) GROUPING OF CLAIMS**

For the purpose of this appeal, Appellants submit that the claims stand or fall together as follows:

In Issue A, claims 19 – 21 stand or fall with claim 18, while claims 1, 8, 39, and 40 have separate bases of patentability;

In Issue B, claims 22 – 24 stand or fall together, while claims 31 – 38 have separate bases of patentability;

In Issue C, claims 25 – 38 have separate bases of patentability; and

In Issue D, claims 2, 3, 7, 9, 15, and 16 stand or fall together with independent claim 1, while claims 4 – 6, 8, 10 – 14, 17, and 40 have separate bases of patentability.

**(8) ARGUMENT**

**(A) The Rejection of Claims 1, 8, 18 – 21, 39, and 40 Under 35 U.S.C. §102(b) Over WO '438 is in Error, the Rejection Should be Reversed, and the Application Should be Remanded to the Examiner.**

The Examiner asserts that WO '438 shows all of the recited features, including that a region of the acute corner angle is thicker than a region of the obtuse corner angle. Appellants traverse the Examiner's assertions.

Appellants note that the Examiner, in the February 2, 2004 Advisory Action, indicated that, in addition to claims 18 – 21 and 39, claims 1, 8, and 40 should be included the instant rejection as being anticipated by WO '438.

To anticipate the instant claims, the applied art must show each and every recited feature of the rejected claims. In this regard, Appellants note that, as WO '438 fails to

disclose a thickness of an indexable tip from a support surface to upper extents of acute corner angles opposite the support surface is greater than a thickness of said indexable tip from the support surface to upper extents of obtuse corner angles opposite the support surface, as recited in at least independent claim 1, fails to disclose a vertical distance from said supporting area to said cutting edges located at said obtuse-angled corners is less than a vertical distance from said supporting area to said cutting edges located at said acute-angled corners, as recited in claim 18, and fails to disclose a working part elongated in an axial direction having a seat parallel to the axial direction, and a greatest width across the hexagonal shape that is at least 0.92 times a thickness of the working part, as recited in at least independent claim 40, the applied art fails to anticipate the invention recited in at least claims 1, 8, 18 – 21, 39, and 40.

As shown in Figure 1 of WO '438, Appellants note that the applied art fails to provide any specific disclosure that a thickness of the indexable tip from a support surface to upper extents of the acute corner angles opposite the support surface is greater than a thickness of the indexable tip from the support surface to upper extents of the obtuse corner angles opposite the support surface, as recited in at least independent claim 1. Moreover, WO '438 likewise fails to provide any specific disclosure that a vertical distance from the supporting area to the cutting edges located at said obtuse-angled corners is less than a vertical distance from the supporting area to the cutting edges located at the acute-angled corners, as recited in claim 18. Still further, as WO '438 fails to provide any disclosure of the recited working part, this document cannot even arguably anticipate the features of at least independent claim

40.

While the Examiner has pointed to Figure 2 in support of her rejection, Appellants note that this Figure does not unequivocally show the features recited in at least Appellants' independent claims 1 and 18, nor is there any disclosure within the text of WO '438 to support the Examiner's assertions of anticipation.

Appellants submit that, to anticipate the claims, the reference must unequivocally show the recited features of the rejected claims. Because Figure 2 fails to unquestionably show a thickness of the indexable tip from the support surface to upper extents of the acute corner angles opposite the support surface is greater than a thickness of the indexable tip from the support surface to upper extents of the obtuse corner angles opposite the support surface, as recited in at least independent claim 1, and fails to unquestionably show a vertical distance from said supporting area to said cutting edges located at said obtuse-angled corners is less than a vertical distance from said supporting area to said cutting edges located at said acute-angled corners, as recited in at least independent claim 18, Appellants submit that this Figure cannot be considered as anticipatory under 35 U.S.C. §102(b). Again, as the Figures of WO '438 fail to show the recited working part, this document cannot anticipate independent claim 40.

As it cannot be readily ascertained from Figure 2 of WO '438 whether or not the recited features of the instant invention are shown, Appellants submit that, at best, WO '438 is ambiguous with regard to this information. As such, Appellants submit that, it is well settled that an anticipation rejection cannot be predicated on an ambiguous reference. See *In*

*re Turlay*, 304 F.2d 893, 134 USPQ 355 (CCPA 1962). Further, an anticipation rejection cannot be based upon teachings in a reference that are vague or based on conjecture. See *Datascope Corp. v. SMEC, Inc.*, 227 USPQ 838 (Fed. Cir. 1985). Thus, Appellants submit that the Examiner's is improperly relying upon an ambiguous reference, which renders the rejection improper.

Moreover, as noted above, Appellants submit that, as text of the WO '438 related to Figure 2 fails to provide any disclosure to support the Examiner's assertions as to the structural arrangement of the tool depicted in Figure 2 of WO '438, including any information related to relative sizes or dimensions of thicknesses at the cutting edges, the applied art fails to anticipate the recited features of the instant invention.

Because WO '438 fails to show each and every recited feature of at least independent claims 1, 18, and 40, Appellants submit that the Examiner has failed to provide an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b). Therefore, Appellants submit that the rejections of at least independent claims 1, 18, and 40 are improper and should be withdrawn.

As noted above, claims 8 and 39 are separately patentable over WO '438. In particular, Appellants note that WO '438 fails to provide any specific disclosure of a relationship between thickness of the working part and a greatest width across the hexagonal shape, as recited in claim 8, nor is there any specific disclosure that the corners are rounded off, as recited in claim 39.

Thus, for these reasons, Appellants submit that claims 8 and 39 are separately



patentable over WO '438.

Further, Appellants submit that claims 19 – 21 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Appellants submit that WO '438 fails to anticipate each and every recited feature of claims 19 – 21.

Accordingly, Appellants request that the Board reverse the Examiner's decision to finally reject claims 1, 8, 18 – 21, 39, and 40 under 35 U.S.C. §102(b), and that the application be remanded to the Examiner for withdrawal of this anticipation rejection over WO '438 and an early allowance of all claims on appeal.

**(B) The Rejection of Claims 22 – 24 and 31 – 38 Under 35 U.S.C.**

**§103(a) Over WO '438 is in Error, the Rejection Should be Reversed, and the Application Should be Remanded to the Examiner.**

The Examiner asserts that the applied art discloses the recited ranges. Appellants traverse the Examiner's assertions.

Appellants note that, in addition to the above-noted discussion of WO '438, this document likewise fails to provide any teaching or suggestion that would render at least independent claim 18 unpatentable. That is, Appellants note that, as Figure 2 and its accompanying text is at best ambiguous with regard to the features recited in at least independent claim 18, WO '438 fails to provide any teaching or suggestion for rendering the instant invention obvious.

Appellants note that WO '438 fails to provide any teaching or suggestion of modifying

the thickness of the insert at the corners, nor is there any suggestion that it would be advantageous to form the insert to have different thickness at the obtuse-angled corners than at the acute-angled corner. As such, Appellants submit that this document cannot even arguably suggest a vertical distance from said supporting area to said cutting edges located at said obtuse-angled corners is less than a vertical distance from said supporting area to said cutting edges located at said acute-angled corners, as recited in claim 18.

Therefore, Appellants submit that WO '438 fails to render unpatentable the combination of features recited in at least independent claim 18.

As noted above, claims 31 – 38 are separately patentable in that WO '438 fails to provide any teaching or suggestion of the features recited in these claims. In particular, Appellants note that WO '438 fails to provide any specific disclosure of the angular orientation of the surfaces between the support surface and cutting edges, as recited in each of claims 31 – 38, nor is there any suggestion in the text as to how one ordinarily skilled in the art would determine such information. As each of claims 31 – 38 recite specific and distinct structural parameters of the instant invention that are not taught in the applied art of record, Appellants submit that these features are separately patentable.

Further, Appellants submit that claims 22 - 24 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Appellants submit that WO '438 fails to teach or suggest the combination of features recited in at least claims 22 - 24 and 31 - 38.

Accordingly, Appellants request that the Board reverse the Examiner's decision to finally reject claims 21 – 24 and 31 – 38 under 35 U.S.C. §103(a), and that the application be remanded to the Examiner for withdrawal of this obviousness rejection over WO '438 and an early allowance of all claims on appeal.

**(C) The Rejection of Claims 25 – 38 Under 35 U.S.C. §103(a) Over WO '438 in view of HALE is in Error, the Rejection Should be Reversed, and the Application Should be Remanded to the Examiner.**

While acknowledging that WO '438 fails to teach the recited orientation of the cutting edges relative to the support area, the Examiner asserts that HALE discloses such a feature and that it would have been obvious to modify WO '438 to include such a feature. Appellants traverse the Examiner's assertions.

As noted above, WO '438 fails to teach or suggest the combination of feature related to the insert recited in at least independent claim 18. Similarly, Appellants submit that HALE fails to teach or suggest the subject matter of at least independent claim 18, which has been shown above to be deficient in the disclosure of WO '438.

Because both applied documents fail to teach or suggest a vertical distance from said supporting area to said cutting edges located at said obtuse-angled corners is less than a vertical distance from said supporting area to said cutting edges located at said acute-angled corners, as recited in claim 18, Appellants submit that no proper combination of these documents can even arguably render unpatentable the instant invention.

Further, Appellants submit that claims 25 – 38 are separately patentable in that neither

WO '438 nor HALE provides any teaching or suggestion of the features recited in these claims. In particular, Appellants note that both WO '438 and HALE fail to provide any specific disclosure of the angular orientation of the cutting edges, as recited in at least claims 25 – 30, nor is there any suggestion in the accompanying text as to how one ordinarily skilled in the art would determine such any angle. Moreover, Appellants note that both of these applied documents fail to provide any specific disclosure of the angular orientation of the surfaces between the support surface and cutting edges, as recited in each of claims 31 – 38, nor is there any suggestion in the text as to how one ordinarily skilled in the art would determine such information. As each of claims 25 – 38 recite specific and distinct structural parameters of the instant invention that are not taught in the applied art of record, Appellants submit that these features are separately patentable.

Accordingly, Appellants request that the Board reverse the Examiner's decision to finally reject claims 25 – 38 under 35 U.S.C. §103(a), and that the application be remanded to the Examiner for withdrawal of this obviousness rejection over WO '438 in view of HALE and an early allowance of all claims on appeal.

**(D) The Rejection of Claims 1 – 17 and 40 Under 35 U.S.C. §103(a)**

**Over WO '438 in view of SHAFFER is in Error, the Rejection Should be Reversed, and the Application Should be Remanded to the Examiner.**

The Examiner asserts that, while WO '438 shows a thickness of the indexable tip from support surface to acute corner angles being greater than the thickness from the support surface to obtuse corner angles, there is no teaching of the tool. However, the Examiner

asserts that SHAFFER discloses a tool having the recited features, and that it would have been obvious to combine the tip of WO '438 with the tool of SHAFFER. Appellants traverse the Examiner's assertions.

Appellants note that, as discussed above, WO '438 fails to teach or suggest the expressly recited features of indexable tip thickness, as recited in at least independent claim 1, and fails to disclose a working part and a relationship between a dimension of the working part and a dimension of the indexable tip, as recited in at least independent claim 40. That is, Appellants submit that WO '438 fails to provide any teaching or suggestion of an indexable tip thickness from said support surface to upper extents of said acute corner angles opposite said support surface is greater than a thickness of said indexable tip from said support surface to upper extents of said obtuse corner angles opposite said support surface, as recited in at least independent claim 1. Moreover, Appellants submit that WO '438 fails to teach or suggest a working part elongated in an axial direction having a seat parallel to the axial direction, and a greatest width across the hexagonal shape being 0.92 times a thickness of the working part, as recited in at least independent claim 40.

Thus, Appellants submit that, in addition to failing to teach or suggest the recited structural features of the cutting tool, WO '438 also fails to provide any teaching or suggestion of a cutting tool body. To address this defect of WO '438, the Examiner has cited SHAFFER. However, Appellants note that SHAFFER does not even arguably teach or suggest the recited features related to thickness, as recited in claim 1.

Because neither applied document teaches or suggests the above-noted features of

thickness, Appellants submit that no proper combination of these documents can render unpatentable the instant invention, as recited in at least independent claim 1. Thus, the rejection is improper and should be withdrawn.

With regard to the rejections of claims 1 and 40, Appellants note that, in establishing a prima facie case of obviousness under 35 U.S.C. §103, it is incumbent upon the Examiner to provide a reason why one of ordinary skill in the art would have found it obvious to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See *Ex parte Clapp*, 227 USPQ 972 (BPAI 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from Appellant's disclosure. See, for example, *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). Notwithstanding the Examiner's statements that it would have been obvious to combine the tool of WO '438 in the working part of SHAFFER, Appellants contend that this is not a reason *why* one of ordinary skill in the art would have been led to modify the device of SHAFFER. It is respectfully submitted that the courts have long held that it is impermissible to use Appellants' claimed invention as an instruction manual or "template" to piece together teachings of the prior art so that the claimed invention is purportedly rendered obvious. See *In re Fritch*, 972 R.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992).

In this regard, Appellants note that the art of record fails to provide any teaching or suggestion that one ordinarily skilled in the art would find it obvious to combine the tip of

WO '438 with the tool body of SHAFFER. That is, Appellants note that it is not apparent from the art of record that replacing the cutting insert of SHAFFER with the indexable tip of WO '438 would enable SHAFFER to operate in its intended manner. In particular, Appellants note that problems would appear to arise in balancing the cutting edges of the insert of WO '438 when operated in the SHAFFER device. Further, as these manners for mounting are distinctly different, it would not appear obvious to combine these documents. Thus, the asserted combination would appear to create vibrations and/or prevent precision cuts intended by SHAFFER and/or WO '438.

Thus, Appellants submit that the art of record fails to teach or suggest the requisite motivation or rationale to support the Examiner's asserted combination of WO '438 and SHAFFER.

Rejections based on 35 U.S.C. §103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The Examiner has the initial duty of supplying the factual basis for the rejection and may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis. *See In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967). As stated in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984):

[t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

In this regard, it is well known to those ordinarily skilled in the art that performance and tool life of a cutting insert is highly sensitive to geometry, and that little changes in cutting edge geometry can cause dramatically shortened tool life. Appellants note that, as the Examiner's asserted combination of documents fails to consider the adverse effects that arise through the asserted combination of WO '438 and SHAFFER, the art of record fails to render the Examiner's asserted combination obvious.

Thus, Appellants submit that, as the Examiner's reasons for combining WO '438 and SHAFFER fails to take into consideration the various engineering stresses and requirements for the cutting tool and/or working part, such that it is not apparent that the resulting tool and holder combination would be able to operate in their intended manners, Appellants submit that the only reason to combine the teachings of the applied references in the manner proposed by the Examiner results from a review of Appellants' disclosure and the application impermissible hindsight.

Accordingly, Appellants submit that the asserted combination of documents fails to teach or suggest the combination of features recited in at least independent claims 1 and 40, and that instant rejections are improper and should be withdrawn.

Further, Appellants submit that claims 4, 8, 10 – 14, and 17 are separately patentable in that no proper combination of WO '438 and SHAFFER provides any teaching or suggestion of the features recited in these claims. In particular, Appellants note that claims 3 and 4 recite specific features regarding the working part that are neither taught nor suggested in the applied art. Further, claims 8 and 17 recite specific dimensions of the tool that are



neither taught nor suggested in the art of record. Claims 10 – 13 recite a cooling bore that is not taught or suggested in the applied art, and claim 14 recites an arrangement of elements that is not rendered unpatentable over any proper combination of WO '438 and SHAFFER. As each of claims 4 – 6, 8, 10 – 14, and 17 recite specific and distinct structural parameters of the instant invention that are not taught in any proper combination of the applied art of record, Appellants submit that these features are separately patentable.

Further, Appellants submit that claims 2, 3, 7, 9, 15, and 16 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Appellants submit that no proper combination of WO '438 and SHAFFER teaches or suggests the combination of features recited in at least these claims.

Accordingly, Appellants request that the Board reverse the Examiner's decision to finally reject claims 1 – 17, and 40 under 35 U.S.C. §103(a), and that the application be remanded to the Examiner for withdrawal of this obviousness rejection over WO '438 in view of SHAFFER and an early allowance of all claims on appeal.


**(E) Conclusion**

Claims 1, 8, 18 – 21, 39, and 40 are patentable under 35 U.S.C. §102(b) over WO '438; claims 22 – 24, and 31 – 38 are patentable under 35 U.S.C. § 103(a) over WO '438; claims 25 – 38 are patentable under 35 U.S.C. § 103(a) over WO '438 in view of HALE; and claims 1 – 17 and 40 are patentable under 35 U.S.C. §103(a) over WO '438 in view of SHAFFER. Specifically, the applied art of record fails to disclose or suggest the unique

combination of features recited in Appellants' claims 1 – 40. Accordingly, Appellants respectfully request that the Board reverse the Examiner's decisions to finally reject claims 1 – 40 under 35 U.S.C. §102(b) and 35 U.S.C. § 103(a) and remand the application to the Examiner for withdrawal of the rejection.

Thus, Appellants respectfully submit that each and every pending claim of the present application meets the requirements for patentability under 35 U.S.C. §102(b) and 35 U.S.C. § 103(a), and that the present application and each pending claim are allowable over the prior art of record.

Respectfully submitted,  
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Attachments: Appendix: Claims on Appeal

**APPENDIX A*****CLAIMS ON APPEAL***

1. (Previously presented) A cutting tool for drilling and turning, comprising:  
a base body comprising a clamping part and a working part axially spaced from each other;

an indexable tip, releasably connected to said working part, comprising a hexagonal shape having at least one circumferential cutting edge, a support surface, and obtuse and acute corner angles; and

a thickness of said indexable tip from said support surface to upper extents of said acute corner angles opposite said support surface is greater than a thickness of said indexable tip from said support surface to upper extents of said obtuse corner angles opposite said support surface.

2. (Original) The cutting tool in accordance with claim 1, wherein said working part is essentially cylindrical.

3. (Original) The cutting tool in accordance with claim 1, wherein said indexable tip is positioned at an end of said working part remote from said clamping part.

4. (Original) The cutting tool in accordance with claim 1, wherein said working part comprises a flute running in a direction of a tool axis and a form-locking seat for said indexable tip.

5. (Original) The cutting tool in accordance with claim 4, wherein, when said indexable tip is seated on said working part, at least one cutting edge slightly projects from

said working part.

6. (Original) The cutting tool in accordance with claim 4, wherein said flute running in a direction of said tool axis is formed with a twist.

7. (Original) The cutting tool in accordance with claim 1, wherein said hexagonal shape of said indexable tip comprises alternately obtuse and acute corner angles and six straight cutting edges.

8. (Previously presented) The cutting tool in accordance with claim 7, wherein a greatest width of said indexable tip is at least 0.92 times a diameter of said working part.

9. (Original) The cutting tool in accordance with claim 1, wherein said at least one cutting edge comprises three cutting edges, and wherein a trajectory of at least a part of one of said three cutting edges projects slightly beyond an outer contour of said working part.

10. (Original) The cutting tool in accordance with claim 1, wherein said base body comprises at least one bore for inserting at least one of coolant and lubricant, and an exit of said at least one bore is directed at said indexable tip.

11. (Original) The cutting tool in accordance with claim 10, wherein said exit of said at least one bore is obliquely arranged relative to a tool axis.

12. (Previously presented) The cutting tool in accordance with claim 11, wherein said exit of said at least one bore is arranged at an angle between 15° and 75° to said tool axis.

13. (Previously presented) The cutting tool in accordance with claim 12,

wherein said exit of said at least one bore is arranged at an angle between  $25^{\circ}$  and  $45^{\circ}$  to said tool axis.

14. (Original) The cutting tool in accordance with claim 1, wherein said indexable tip comprises a center hole and the center hole of said indexable tip is eccentrically positioned outside a center of said working part.

15. (Previously presented) The cutting tool in accordance with claim 1, wherein said at least one cutting edge comprises a plurality of cutting edges arranged to form acute angled corners having an angle of  $88^{\circ} \pm 1.7^{\circ}$ .

16. (Previously presented) The cutting tool in accordance with claim 15, wherein said at least one cutting edge comprises a plurality of cutting edges arranged to form acute angled corners having an angle of  $88^{\circ} \pm 0.3^{\circ}$ .

17. (Previously presented) The cutting tool in accordance with claim 1, wherein a front cutting edge of said indexable tip forms an angle of  $89.8^{\circ} \pm 0.5^{\circ}$  with an axis of tool rotation.

18. (Previously presented) An indexable tip for a cutting tool for the machining of materials, comprising:

a flat supporting area;

a face opposite said supporting area;

said flat supporting area and said face being arranged to form open spaces coupling said supporting area and said face; and

six circumferential cutting edges arranged to form acute and obtuse angled corners,

wherein a vertical distance from said supporting area to said cutting edges located at said obtuse-angled corners is less than a vertical distance from said supporting area to said cutting edges located at said acute-angled corners.

19. (Original) The indexable tip in accordance with claim 18, wherein said cutting tool is structured for the machining of metals and alloys.

20. (Original) The indexable tip in accordance with claim 18, further comprising an attachment device formed as a center hole.

21. (Original) The indexable tip in accordance with claim 18, wherein said cutting edges are arranged to form alternately acute-angled corners and obtuse-angled corners.

22. (Previously presented) The indexable tip in accordance with claim 18, wherein said cutting edges form acute angled corners having an angle of  $88^{\circ} \pm 1.7^{\circ}$ .

23. (Previously presented) The indexable tip in accordance with claim 22, wherein said acute angled corners are  $88^{\circ} \pm 0.5^{\circ}$ .

24. (Previously presented) The indexable tip in accordance with claim 22, wherein said acute angled corners are  $88^{\circ} \pm 0.3^{\circ}$ .

25. (Previously presented) The indexable tip in accordance with claim 18, wherein said cutting edges are oriented at an angle of between  $2^{\circ}$  and  $10^{\circ}$  to said supporting area.

26. (Previously presented) The indexable tip in accordance with claim 25, wherein said cutting edges are oriented at an angle between  $4^{\circ}$  and  $8^{\circ}$  to said supporting

area.

27. (Previously presented) The indexable tip in accordance with claim 25, wherein said cutting edges are oriented at an angle of  $7^{\circ} \pm 0.5^{\circ}$  to said supporting area.

28. (Previously presented) The indexable tip in accordance with claim 18, wherein a part of said face immediately bordering said cutting edge forms an angle of between  $2^{\circ}$  and  $18^{\circ}$  with said supporting area.

29. (Previously presented) The indexable tip in accordance with claim 28, wherein a part of said face immediately bordering said cutting edge forms an angle of between  $4^{\circ}$  and  $12^{\circ}$  with said supporting area.

30. (Previously presented) The indexable tip in accordance with claim 28, wherein a part of said face immediately bordering said cutting edge forms an angle of between  $5^{\circ}$  and  $10^{\circ}$  with said supporting area.

31. (Previously presented) The indexable tip in accordance with claim 18, wherein the open spaces form an angle of between  $5^{\circ}$  and  $12^{\circ}$  with a straight line normal to said supporting area at said cutting edges.

32. (Previously presented) The indexable tip in accordance with claim 31, wherein the open spaces form an angle of between  $6^{\circ}$  and  $11^{\circ}$  with a straight line normal to said supporting area at said cutting edges.

33. (Previously presented) The indexable tip in accordance with claim 31, wherein the open spaces form an angle of  $7^{\circ} \pm 0.5^{\circ}$  with a straight line normal to said supporting area at said cutting edges.

34. (Previously presented) The indexable tip in accordance with claim 18, wherein the open spaces are divided into at least two sections comprising a first section, bordering the cutting edges, forming an angle of between  $5^{\circ}$  and  $12^{\circ}$ , and a second section, bordering said supporting area, forming an angle of between  $12^{\circ}$  to  $25^{\circ}$  with a straight line normal to said supporting area.

35. (Previously presented) The indexable tip in accordance with claim 34, wherein said first section forms an angle of between  $6^{\circ}$  and  $11^{\circ}$ .

36. (Previously presented) The indexable tip in accordance with claim 34, wherein said first section forms an angle of  $7^{\circ} \pm 0.5^{\circ}$ .

37. (Previously presented) The indexable tip in accordance with claim 34, wherein said second section forms an angle of between  $14^{\circ}$  and  $22^{\circ}$ .

38. (Previously presented) The indexable tip in accordance with claim 34, wherein said second section forms an angle of  $15^{\circ} \pm 0.5^{\circ}$ ,

39. (Original) The indexable tip in accordance with claim 18, wherein said corners are rounded off.

40. (Previously presented) A cutting tool for drilling and turning, comprising:  
a working part elongated in an axial direction having a seat parallel to said axial direction;

an indexable tip, releasably connected to said seat, comprising a hexagonal shape, at least one circumferential cutting edge located between adjacent angles of said hexagonal shape, and a support surface;



a greatest width across said hexagonal shape is at least 0.92 times a thickness of said working part; and

said at least one circumferential cutting edge being arranged obliquely to said support surface.